UNITED STATES PATENT AND TRADEMARK OFFICE

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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EXAMINER
SHEW, JOHN

ART UNIT	PAPER NUMBER
2664	

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Please find below and/or attached an Office communication concerning this application or proceeding.

		Application No.	Applicant(s)
Office Action Summary		09/872,851	MANOHARAN ET AL.
		Examiner	Art Unit
		John L Shew	2664

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE <u>3</u> MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on <u>06/01/2001</u>.

2a)☐ This action is **FINAL**.   2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☐ Claim(s) _____ is/are pending in the application.

    4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-20* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☒ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

    Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

    a)☐ All b)☐ Some * c)☐ None of:

      1.☐ Certified copies of the priority documents have been received.

      2.☐ Certified copies of the priority documents have been received in Application No. _____.

      3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

    * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)

2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date <u>06012001</u>.

4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .

5) ☐ Notice of Informal Patent Application (PTO-152)

6) ☐ Other: _____.

DETAILED ACTION

Specification

1.   The disclosure is objected to because of the following informalities:

Page 30 line 2 cites "VF 612" should be "VF 610".

Page 42 line 11 cites "node 1206" should be "node 1204".

Appropriate correction is required.

Claim Rejections - 35 USC § 102

2.   The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that

form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1, 2, 3, 4, 5, 6, 13, 16 are rejected under 35 U.S.C. 102(b) as being anticipated

by Anderson et al.

Claim 1, Anderson teaches a transport network that includes at least one traffic ingress

node (FIG. 1, column 4 lines 3-12) referenced by Source Node 101 for ingress traffic, in

communication with at least one traffic egress node (FIG. 1, column 4 lines 3-12, lines

34-49) referenced by Sink Node 103 receiving the egress traffic stream, a method for

protecting the flow of traffic therein against a failure and for restoring it therefrom (FIG. 2

column 4 lines 16-24) referenced by the failure due to the physical layer defect followed

by the 1+1 protection switching, the method comprising provisioning at least one active

Virtual Flow (VF) (FIG. 1, column 2 lines 62-67, column 3 lines 1-6) referenced by the

Virtual Path of the working Virtual Protection Group (VPG_w), and at least one protect

VF of traffic between the ingress node and the egress node (FIG. 1, column 3 lines 7-

10) referenced by the Virtual Path of the protection Virtual Protection Group (VPG_p)

between source node 101 and sink node 103, the active and the protect VFs each

taking a different physical path from the other (FIG. 1) referenced by the working path

through intermediate node 102 and the protect path through intermediate node 104,

grouping the active and the protect VFs into respective active and protect Path

Protection Groups ("PPGs") (FIG. 1) referenced by the active VPG_w and protect

VPG_p, each PPG thereby taking a different physical path from the other (FIG. 1)

referenced by the bold line path of the working VPG which is different from the dotted

line path of the protect VPG, sending protected traffic from the ingress node to the

egress node via at least one of the active and the protect PPGs (column 3 lines 66-67,

column 4 lines 1-12) referenced by the VPG source node 101 source signals on the

working VPG channel being copied onto the protection VPG channel, receiving the

protected traffic at the egress node via at least one of the active and the protect PPGs

(column 4 lines 3-12) referenced by the sink node 103 selecting the ingress connection

traffic form the working VPG or the protection VPG, detecting a failure in the protected

traffic in the active PPG (FIG. 2, column 4 lines 16-33) referenced by the physical layer

defect of a fiber cut detected by the intermediate node 102 or sink node 103, protection

switching at least one of the sending and receiving of the protected traffic from via the

active PPG to via the protect PPG in response to the detection of the failure (FIG. 2,

column 4 lines 34-67, column 5 lines 1-12) referenced by the sink node 103 VPG

protection switch so traffic selection is over the Protection VPG between source node

101 and sink node 103.

Claim 2, Anderson teaches the protected traffic is sent in parallel via both the active and

the protect PPGs (column 4 lines 3-12) referenced by the source node 101 VP

connection being 1:2 multicast onto the working and protection VPGs.

Claim 3, Anderson teaches the protected traffic is sent via the active PPG (FIG. 1)

referenced by the bold line traffic flow between source node 101 and sink node 103,

and in which bandwidth is reserved in the protect PPG in an amount equal to that

occupied by the protected traffic in the active PPG (column 1 lines 44-59) referenced by

the 1:1 protection switching which send traffic over an active channel and reserves

traffic bandwidth over a protection channel.

Claim 4, Anderson teaches the egress node switches the receiving of the protected

traffic from via the active PPG to via the protect PPG in response to the detection of the

failure (column 4 lines 3-12, lines 50-67, column 5 lines 4) referenced by the sink node

103 upon fault detection from reception of the VPseg-AIS signal using a 2:1 selector to

select the ingress connection traffic from the working VPG or the protection VPG.

Claim 5, Anderson teaches each of the ingress and the egress nodes respectively

switches the sending and the receiving of the protected traffic from via the active PPG

to via the protect PPG in response to the detection of the failure (column 5 lines 22-34)

referenced by the selection from the working to the protection VPG is coordinated at

both the source and sink nodes.

Claim 6, Anderson teaches provisioning the VFs further comprises provisioning a

dedicated Management Control Flow ("MCF") in each of the active and the protect

PPGs (column 2 lines 4-8, column 4 lines 34-49) referenced Operations Administration

and Maintenance cells within the virtual paths, detecting a failure further comprises

generating a protection switching signal ("PSS") in response to the detection of the

failure and transmitting the PSS in the MCF of the protect PPG (column 4 lines 25-49)

referenced by the detection of Loss of Cell Delineation followed by the generation of a

"VPseg-AIS" signal within the OAM cell transmitted for all affected VPIs inserted into the

egress cell stream, to at least one of the ingress and the egress nodes in response

thereto (column 4 lines 50-54) referenced by the Sink node 103 reception of the

"VPseg-AIS" signal, and protection switching further comprises at least one of the

ingress and the egress nodes receiving the PSS (column 4 lines 50-54) referenced by

the Sink node 103 reception of the "VPseg-AIS" signal, and respectively switching at

least one of the sending and the receiving of the protected traffic from via the active

PPG to via the protect PPG in response thereto (column 4 lines 50-67, column 5 lines 1-

4) referenced by the VPG sink node 103 switching the VPG selector from the working

VPG to the protection VPG.

Claim 13, Anderson teaches detecting a failure in the protected traffic in the active PPG

comprises detecting one of a loss of signal ("LOS") (column 3 lines 4-19) referenced by

the Virtual Protection Group with defect types including Loss of Signal, and a loss of

framing ("LOF") (column 3 lines 16-19) referenced by defect types including Loss of

Frame.

Claim 16, Anderson teaches the network includes a physical medium comprising at

least one of a metal cable (FIG. 7, column 9 lines 6-16) referenced by the electrical

signals which must be carried on a metal cable, and a fiber optic cable (FIG. 7, column

9 lines 6-16) referenced by the SONET optical signal which must be carried on a fiber

optic cable.

Claim Rejections - 35 USC § 103

3.   The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all

obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 7, 9, 14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Anderson et al. as applied to claims 1-6 above in view of Shiragaki et al.

Claim 7, Anderson teaches the network further comprises an intermediate node between the ingress node and the egress node (FIG. 1) referenced by the intermediate node 102, and detecting a failure further comprises at least one of the ingress, the intermediate and the egress nodes detecting the failure (FIG. 2, column 4 lines 15-33) referenced by the detection of the defect condition by the intermediate node 102 or the sink node 103, generating the PSS in response thereto (column 4 lines 34-49) referenced by the generation of the VPseg-AIS signal, and transmitting the PSS in the MCF of the active PPG to at least one of the ingress and the egress nodes (column 4 lines 35-54) referenced by the generation of the VPseg-AIS signal within the OAM cell and inserting the cell into the egress cell stream for all affected VPIs which includes the active VPG to the sink node 103. Anderson does not teach the active and protect PPGs pass through the intermediate node.

Shiragaki teaches the active and protect PPGs pass through the intermediate node (FIG. 1) referenced by the source node 106 intermediate node 105 and destination node 108 wherein the Working Ring 101 and Protection Ring 102 both pass through intermediate node 105.

It would have been obvious to one of ordinary skill in the art at the time the invention

was made to incorporate the ring topology of Shiragaki to the ATM protection switching

apparatus of Anderson for the purpose of providing a short-length fault recovery route

for high efficient utilitzation of transmission mediums.

Claim 9, Anderson teaches the VFs are automatically provisioned by the network by

identifying to the network the ingress and the egress nodes for a particular flow of traffic

that is to be protected (column 4 lines 25-33, column 5 lines 5-12) referenced by the

SONET Automatic Protection Switching of the VPG.

Claim 14, Anderson teaches the network is deployed in one of a linear point-to-point

(FIG. 1) referenced by the linear points from source 101 to sink 103, a mesh (Abstract

lines 1-12) referenced by the application to mesh switching, a unidirectional path

switched ring (Abstract lines 1-12, FIG. 1, column 4 lines 3-12) referenced by the

application to a ring protection with the VPG source node 101 and sink node 103 in a

unidirection. Anderson does not teach a two-fiber ring nor a four-fiber ring.

Shiragaki teaches a network deployed in one of a two-fiber bi-directional ring (FIG. 5,

column 9 lines 5-19) referenced by the two-fiber bi-directional ring in paths 101 and 102,

and a four-fiber bi-directional ring configuration (FIG. 1, column 4 lines 39-50)

referenced by the WDM four-fiber ring with the direction of transmission between the

working and protection rings are opposite to each other.

It would have been obvious to one of ordinary skill in the art at the time the invention

was made to incorporate the ring topology of Shiragaki to the ATM protection switching

apparatus of Anderson for the purpose of providing a short-length fault recovery route

for high efficient utilitzation of transmission mediums.

4.   Claim 8 is rejected under 35 U.S.C. 103(a) as being unpatentable over Anderson

and Shiragaki as applied to claims 1-7 above, and further in view of Kajitani et al.

Claim 8, Anderson and Shiragaki teaches an ATM protection switching apparatus with

intermediate nodes active and protective PPGs passing through the intermediate node.

They do not teach manually provisioning the Virtual Flows.

Kajitani teaches VFs (Abstract lines 1-5) referenced by the Permanent Virtual

Connection, are manually provisioned in each of the ingress the intermediate and the

egress nodes ((Fig. 14, column 1 lines 24-28, column 20 lines 54-65) referenced by the

alternate route manual definitions for each node of the alternate route.

It would have been obvious to one of ordinary skill in the art at the time the invention

was made to incorporate the rerouting method for a PVC route of Kajitani to the ATM

protection switching apparatus of Anderson and Shiragaki for the purpose of providing

PVC rerouting on an ATM network.

Claims 10, 11, 12, 15, 17, 18, 20 are rejected under 35 U.S.C. 103(a) as being

unpatentable over Anderson et al. as applied to claims 1-6 above in view of Alvarez et

al.

Claim 10, Anderson teaches an ATM connection protection switching apparatus. He

does not teach hybrid traffic comprising one of TDM and MPLS.

Alvarez teaches the hybrid traffic comprises at least one of Time-Division-Multiplexed

("TDM") traffic (column 6 lines 55-61) referenced by the OTS interface with data-link

layer domains including TDM, Asynchronous Transport Mode ("ATM") traffic (FIG. 1)

referenced by the ATM over SONET HW 130, and Multi-Protocol Label Switched

("MPLS") packet traffic (FIG. 1, column 5 lines 1-4) referenced by the MPLS Label

Switched Router connected to the Gigabit Ethernet 132.

It would have been obvious to one of ordinary skill in the art at the time the invention

was made to incorporate the hybrid network of Alvarez to the ATM protection switching

apparatus of Anderson for the purpose of providing a node management architecture

including a line card manager for managing individual line cards.

Claim 11, Anderson teaches an ATM connection protection switching apparatus. He

does not teach MPLS traffic.

Alvarez teaches the MPLS traffic comprises Internet Protocol ("IP") traffic or Packet

Over SONET ("POS") traffic (FIG. 1) referenced by the connection of the MPLS LSR via

a Gigabit Ethernet 132 to the Optical Add Drop Multiplexer of the optical network 105

which is SONET based.

It would have been obvious to one of ordinary skill in the art at the time the invention

was made to incorporate the hybrid network of Alvarez to the ATM protection switching

apparatus of Anderson for the purpose of providing a node management architecture

including a line card manager for managing individual line cards.

Claim 12, Anderson teaches an ATM connection protection switching apparatus. He

does not teach a label switching router.

Alvarez teaches each node comprises one of an Add-Drop Multiplexer ("ADM") (FIG. 1)

referenced by the Optical Add Drop Multiplexer 106, an ATM switch (FIG. 1) referenced

by the ATM over SONET HW 130 switch, and a Label Switching Router (FIG. 1)

referenced by the MPLS Label Switching Router.

It would have been obvious to one of ordinary skill in the art at the time the invention

was made to incorporate the hybrid network of Alvarez to the ATM protection switching

apparatus of Anderson for the purpose of providing a node management architecture

including a line card manager for managing individual line cards.

Claim 15, Anderson teaches an ATM connection protection switching apparatus. He does not teach the network includes a transport layer including a Gigabit Ethernet Layer.

Alvarez teaches the network includes transport layer comprising at least one of a synchronous digital hierarchy ("SDH") layer (FIG. 1, column 6 lines 55-61) referenced by the interface to SONET/SDH/STM systems, a synchronous optical network ("SONET") layer (FIG. 1, column 6 lines 55-61) referenced by the interface to SONET/SDH/STM systems, a direct wavelength division multiplexing ("WMD") layer (FIG. 3, column 7 lines 43-65) referenced by the WDM, and a Gigabit Ethernet layer (FIG. 1) referenced by the Gigabit Ethernet unit 132.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate the hybrid network of Alvarez to the ATM protection switching apparatus of Anderson for the purpose of providing a node management architecture including a line card manager for managing individual line cards.

Claim 17, Anderson teaches a transport network that includes at least one traffic ingress node (FIG. 1, column 4 lines 3-12) referenced by Source Node 101 for ingress traffic, in communication with at least one traffic egress node (FIG. 1, column 4 lines 3-12, lines 34-49) referenced by Sink Node 103 receiving the egress traffic stream, and in hybrid traffic comprises Asynchronous Transport Mode ("ATM") traffic (Abstract lines 1-4) referenced by ATM virtual connection, a method for protecting the flow of traffic in the network against a failure and for restoring it from such a failure (FIG. 2 column 4 lines

16-24) referenced by the failure due to the physical layer defect followed by the 1+1

protection switching, the method comprising provisioning at least one active Virtual Flow

(VF) (FIG. 1, column 2 lines 62-67, column 3 lines 1-6) referenced by the Virtual Path of

the working Virtual Protection Group (VPG_w), and at least one protect VF of traffic

between the ingress node and the egress node (FIG. 1, column 3 lines 7-10) referenced

by the Virtual Path of the protection Virtual Protection Group (VPG_p) between source

node 101 and sink node 103, the active and the protect VFs each taking a different

physical path from the other (FIG. 1) referenced by the working path through

intermediate node 102 and the protect path through intermediate node 104, grouping

the active and the protect VFs into respective active and protect Path Protection Groups

("PPGs") (FIG. 1) referenced by the active VPG_w and protect VPG_p, whereby each

PPG takes a different physical path from the other (FIG. 1) referenced by the bold line

path of the working VPG which is different from the dotted line path of the protect VPG,

provisioning a dedicated Management Control Flow ("MCF") in each of the active and

the protect PPGs (column 2 lines 4-8, column 4 lines 34-49) referenced Operations

Administration and Maintenance cells within the virtual paths, sending protected traffic

from the ingress node to the egress node via at least one of the active and the protect

PPGs (column 3 lines 66-67, column 4 lines 1-12) referenced by the VPG source node

101 source signals on the working VPG channel being copied onto the protection VPG

channel, receiving the protected traffic at the egress node via at least one of the active

and the protect PPGs (column 4 lines 3-12) referenced by the sink node 103 selecting

the ingress connection traffic form the working VPG or the protection VPG, detecting a

failure in the protected traffic in the active PPG (FIG. 2, column 4 lines 16-33)

referenced by the physical layer defect of a fiber cut detected by the intermediate node

102 or sink node 103, generating a protection switching signal ("PSS") in response to

the detection of a failure and transmitting the PSS (column 4 lines 25-49) referenced by

the detection of Loss of Cell Delineation followed by the generation of a "VPseg-AIS"

signal within the OAM cell transmitted for all affected VPIs inserted into the egress cell

stream, to at least one of the ingress and the egress nodes in at least one of the MCFs

of the active and the protect PPGs (column 4 lines 25-54) referenced by the Sink node

103 reception of the "VPseg-AIS" signal within the OAM cell to the sink node 103, and

at least one of the ingress and the egress nodes receiving the PSS (column 4 lines 50-

54) referenced by the Sink node 103 reception of the "VPseg-AIS" signal, and

respectively switching at least one of the sending and the receiving of the protected

traffic from via the active PPG to via the protect PPG in response thereto (column 4

lines 50-67, column 5 lines 1-4) referenced by the VPG sink node 103 switching the

VPG selector from the working VPG to the protection VPG. Anderson does not teach

hybrid traffic comprising of TDM nor MPLS.

Alvarez teaches the hybrid traffic comprises Time-Division-Multiplexed ("TDM") traffic

(column 6 lines 55-61) referenced by the OTS interface with data-link layer domains

including TDM, Asynchronous Transport Mode ("ATM") traffic (FIG. 1) referenced by the

ATM over SONET HW 130, and Multi-Protocol Label Switched ("MPLS") packet traffic

(FIG. 1, column 5 lines 1-4) referenced by the MPLS Label Switched Router connected

to the Gigabit Ethernet 132.

It would have been obvious to one of ordinary skill in the art at the time the invention

was made to incorporate the hybrid network of Alvarez to the ATM protection switching

apparatus of Anderson for the purpose of providing a node management architecture

including a line card manager for managing individual line cards.

Claim 18, Anderson teaches the network is operated in one of a bridged mode (Abstract

lines 1-12, FIG.1, column 4 lines 3-12) referenced by the 1+1 protection with 1:2

multicast by source node 101 to sink node 103, and an un-bridged mode (Abstract lines

1-12) referenced by 1:1 protection where the source node 101 is unicast to sink node

103.

Claim 20, Anderson teaches an ATM connection protection switching apparatus. He

does not teach the network includes a transport layer including a Gigabit Ethernet

Layer.

Alvarez teaches the network includes transport layer comprising at least one of a

synchronous digital hierarchy ("SDH") layer (FIG. 1, column 6 lines 55-61) referenced

by the interface to SONET/SDH/STM systems, a synchronous optical network

("SONET") layer (FIG. 1, column 6 lines 55-61) referenced by the interface to

SONET/SDH/STM systems, a direct wavelength division multiplexing ("WMD") layer

(FIG. 3, column 7 lines 43-65) referenced by the WDM, and a Gigabit Ethernet layer

(FIG. 1) referenced by the Gigabit Ethernet unit 132.

It would have been obvious to one of ordinary skill in the art at the time the invention

was made to incorporate the hybrid network of Alvarez to the ATM protection switching

apparatus of Anderson for the purpose of providing a node management architecture

including a line card manager for managing individual line cards.

5.   Claim 19 is rejected under 35 U.S.C. 103(a) as being unpatentable over

Anderson and Alvarez as applied to claim 17 above, and further in view of Shiragaki et

al.

Claim 19, Anderson and Alvarez teaches an ATM connection protection switching

apparatus with TDM and MPLS traffic.

Anderson teaches the network is deployed in one of a linear point-to-point (FIG. 1)

referenced by the linear points from source 101 to sink 103, a mesh (Abstract lines 1-

12) referenced by the application to mesh switching, a unidirectional path switched ring

(Abstract lines 1-12, FIG. 1, column 4 lines 3-12) referenced by the application to a ring

protection with the VPG source node 101 and sink node 103 in a unidirection. Anderson

and Alvarez do not teach a two-fiber ring nor a four-fiber ring.

Shiragaki teaches a network deployed in one of a two-fiber bi-directional ring (FIG. 5,

column 9 lines 5-19) referenced by the two-fiber bi-directional ring in paths 101 and 102,

and a four-fiber bi-directional ring configuration (FIG. 1, column 4 lines 39-50)

referenced by the WDM four-fiber ring with the direction of transmission between the

working and protection rings are opposite to each other.

It would have been obvious to one of ordinary skill in the art at the time the invention

was made to incorporate the ring topology of Shiragaki to the ATM protection switching

apparatus of Anderson and Alvarez for the purpose of providing a short-length fault

recovery route for high efficient utilitzation of transmission mediums.

Citation of Prior Art

The prior art made of record and not relied upon is considered pertinent to applicant's

disclosure. Patent 6665263, Kawabata et al. discloses a VP protection system. Patent

6721502, Al-Salameh et al. discloses a shared optical protection ring architecture.

Patent 6775229, Mo et al. discloses a system for providing a protection path for

connection-oriented signals in a telecommunications network.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to John L Shew whose telephone number is 571-272-3137. The examiner can normally be reached on 8:30am - 5:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Wellington Chin can be reached on 571-272-3134. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

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